

SECTION 1440

FITTINGS, FLEXIBLE COUPLINGS, GASKETS, AND REPAIR CLAMPS

1440.0100 GENERAL

1440.0101 Description of Work. The work under this Section shall consist of furnishing all labor, materials, tools, equipment, and incidental items required for the installation of fittings, flexible couplings, and repair clamps in accordance with the details shown on the plans and the requirements of these specifications.

1440.0103 Submittals. In order to be accepted for incorporation into the work, the manufacturer's make and model of fittings, flexible couplings, and repair clamps shall appear on the list of Agency-approved products in Appendix A of these standard specifications.

1440.0104 Delivery, Storage, and Handling. Fittings, flexible couplings, Gaskets, and repair clamps shall be delivered to the site, stored, and handled in accordance with the manufacturer's instructions except as may be modified by the plans, special specifications, or as directed by the Engineer.

1440.0200 PRODUCTS

1440.0201 Materials.

(A) Fittings.

(1) Cast Iron and Ductile Iron Fittings. Cast iron and ductile iron fittings shall meet the requirements of AWWA C110 and AWWA C153 for compact fittings. Working pressure for fittings 24 inches in diameter and larger shall be as indicated on the plans or in the special specifications.

The interior surface of cast iron and ductile iron fittings shall be cement-mortar lined and sealed by the manufacturer in accordance with AWWA C104.

All plugs and caps used for stub-outs shall be tapped for a 2-inch national pipe thread.

Connection bolts and nuts for mechanical joint fittings shall be manufactured of Corten steel or approved equal in accordance with ASTM A242. For flanged fittings, connection bolts and washers shall be manufactured of type 316 stainless steel, and nuts shall be manufactured of type 316 stainless steel with a Xylan coating or approved equal. No anti-seize compound shall be applied on flange bolts.

(2) Fabricated Steel Fittings. Fabricated steel fittings shall meet the requirements of AWWA C208 and AWWA M11. The working pressure for steel fittings shall be as indicated on the plans or in the special specifications.

SECTION 1440

The interior surface of steel fittings shall be cement-mortar lined and sealed by the manufacturer in accordance with AWWA C104. Liquid epoxy coating systems shall be in accordance with AWWA C210. Fusion-bonded epoxy coatings shall be in accordance with AWWA C213 as specified on the plans or in the special specifications.

Restraining methods for fittings shall be in accordance with Section 1406.

(B) Flexible Couplings. Couplings shall meet the requirements of AWWA C219. Joint harnesses—if shown on the plans or specified in the special specifications—shall be in accordance with AWWA M11.

Center sleeves may be manufactured from carbon steel, stainless steel, or ductile iron, unless otherwise specified on the plans, special specifications, or as directed by the Engineer.

Bolts and washers for couplings shall be manufactured of type 316 stainless steel, and nuts shall be manufactured of type 316 stainless steel with a Xylan coating or approved equal. No anti-seize compound shall be applied on flanged bolts.

Nuts and bolts for couplings 2 inches in diameter and smaller shall be stainless steel or cadmium plated. Nuts and bolts for couplings larger than 2 inches in diameter shall be stainless steel 18-8 type 303.

The minimum working pressure of the coupling shall be the same as the working pressure of the pipeline to which the coupling is to be installed.

Interior and exterior coatings shall be applied by the manufacturer in accordance with AWWA C550 unless otherwise specified on the plans or in the special specifications. The minimum dry coating thickness shall be 12 millimeters unless the lining thickness is limited by the working tolerance of the coupling components.

(C) Gaskets. All gaskets must be Full Faced and NSF61 approved. Gaskets must be at least 1/8 inch thick unless otherwise noted. Material for gaskets shall be SBR, Neoprene, NBR (Buna-N), or EPDM rubber. All gaskets shall conform to ANSI/AWWA C111/A21.11, ANSI A21.10, ANSI A21.15, ASME B16.1 Class 125, and AWWA C207. Flange connections shall be made without any strain or bending on the flanges. Flanged fittings shall be properly anchored and supported to prevent any damage to the flange or gasket. Any kind of adhesion chemical/lubricant will not be accepted during installation of the gasket; any gasket with adhesion will be rejected and replaced by the Contractor at no cost to the Agency. Segment gaskets are not allowed. Installation shall follow TW Standard Detail 704 for flange connections.

(D) Repair Clamps. Repair clamps shall only be utilized for TW Standard Detail 350 or after obtaining written approval from the Engineer. When approved, repair clamps shall meet the following minimum specifications:

SECTION 1440

- (1) Repair clamps 2 inches and larger shall be of the full circle type.
- (2) Repair clamps smaller than 2 inches may have ductile iron or malleable iron lugs that shall be epoxy coated in accordance with AWWA C550.
- (3) All repair clamp components shall be constructed of type 316 stainless steel. The gasket shall consist of gridded rubber material with tapered ends suitable for the liquid in the pipeline.

1440.0300 EXECUTION

1440.0302 Installation.

(A) General. Fittings, flexible couplings, gaskets, and repair clamps shall be installed in accordance with the manufacturer's recommendations and AWWA C600, except as modified herein.

All fittings, valves, flexible couplings, and repair clamps to be buried shall be encased with an 8-millimeter polyethylene wrap in accordance with AWWA C105, Method C.

(B) Workmanship. The Contractor shall provide personnel skilled and knowledgeable regarding installation procedures for the fittings, flexible couplings, and repair clamps, as well as all incidental appurtenances being installed.